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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,993

08/29/2006

Daniel Allen Smith

3638-891 (AMK)

4226

23117

7590

06/16/2008

NIXON & VANDERHYE, PC

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ARLINGTON, VA 22203

EXAMINER

ADAMS, GREGORY W

ART UNIT

PAPER NUMBER

3652

MAIL DATE

DELIVERY MODE

06/16/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/590,993

Applicant(s)

SMITH ET AL.

Examiner

GREGORY W. ADAMS

Art Unit

3652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date 8/29/06: 5/10/07
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "soft touch" of claim 12 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3 & 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. With respect to FIG. 4, once gripper 13 pivots about third axis 22, fourth axis 24 is not parallel to a ground plane.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 & 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erickson et al. (US 6,460,414). Erickson et al. disclose-

- a gripping system 74, 75 that securely holds a load;
- a manipulation assembly supporting a gripping system, a manipulation assembly being movable in at least five degrees (C2/L45-52) of freedom; and

- an operator-controlled control system 63 effecting control of a manipulation assembly (C2/L44-47).

It is noted that although Erickson et al. does not explicitly disclose an operator-controlled control system Erickson et al. discloses a controller that is programmable. A skilled artisan would know that programming requires some level of human interaction, e.g. at initial input. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Erickson et al. to have an operator program Erickson's programmable robot.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3 & 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt (US 3,630,389) in view of Ehmke (US 3,598,263).

With respect to claims 1-3, Schmidt et al. discloses an attachment for a telescopic material handler enabling support and manipulation of a load, an attachment comprising:

- a gripping system 34 that securely holds a load;
- an operator-controlled control system effecting control of a manipulation assembly;
- wherein a manipulation assembly is pivotable about a first axis 13 generally perpendicular to a ground plane, defining a first degree of freedom, a manipulation assembly comprising a main arm supporting a gripping system, wherein a main arm is pivotable about a second axis 21 generally parallel to a ground plane, defining a second degree of freedom, a manipulation assembly further comprising a panel rotator assembly attached to a main arm via a four bar mechanism, wherein a four bar mechanism pivots a panel rotator assembly about a third axis 30 (or 50) generally parallel to a ground plane and a second axis, defining a third degree of freedom and effecting rotation of a load, wherein a gripping system is rotatable relative to a main arm by a panel rotator assembly about a fourth axis 29 generally parallel to a ground plane and perpendicular to a second and third axes, defining a fourth degree of freedom and effecting rotation of a load about a normal axis, and wherein a

gripping system is translatable relative to a main arm, defining a fifth degree of freedom.

Schmidt discloses relative rotation between a gripper and arm and does not disclose a gripping system translatable relative to a main arm. Ehmke discloses a gripping system 47 that is translatable (indicated generally as 10, 11 (or 27, 28)) relative to a main arm 4, defining a fifth degree of freedom. Ehmke teaches precise positioning of glass plates without excessive bending which causes breakage. C1. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Schmidt to include Ehmke's translatable gripping system to prevent breakage of building materials during installation.

With respect to claims 14-15, Schmidt et al. discloses a method of manipulating a load, the method comprising:

- holding a load with a gripping system 34;
- supporting a gripping system 34 with a manipulation assembly for movement in at least five degrees of freedom via an operator-controlled control system;
- pivoting a manipulation assembly about a first axis generally perpendicular to a ground plane, defining a first degree of freedom, wherein a manipulation assembly includes a main arm supporting a gripping system, and wherein a method comprises pivoting a main arm about a second axis generally parallel to the ground plane, defining a second degree of freedom, wherein a manipulation assembly further includes a panel rotator assembly attached to the main arm -via a four bar mechanism, wherein a method comprises

pivoting a panel rotator assembly via a four bar mechanism about a third axis generally parallel to a ground plane and a second axis, defining a third degree of freedom and effecting rotation of a load, wherein a method further comprises rotating with a panel rotator assembly a gripping system relative to the main arm about a fourth axis generally parallel to a ground plane and perpendicular to a second and third axes, defining a fourth degree of freedom and effecting rotation of a load about a normal axis; and

Schmidt discloses relative rotation between a gripper and arm and does not disclose translating a gripping system relative to the main arm, defining a fifth degree of freedom. Ehmke discloses translating (indicated generally as 10, 11 (or 27, 28)) a gripping system 47 that is translatable relative to a main arm 4, defining a fifth degree of freedom. Ehmke teaches precise positioning of glass plates without excessive bending which causes breakage. C1. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Schmidt to include Ehmke's translating gripping system to prevent breakage of building materials during installation.

Claims 4 & 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Ehmke and further in view of Johansson (US 4,878,798).

With respect to claim 4, Schmidt discloses vacuum cups and does not disclose a vacuum pump and reservoir. Johansson discloses a material handling device comprising vacuum cups 22, pump 24 and reservoir 25 which can handle boxes as in the case of special-duty boxes. C1/L35-55. Therefore, it would have been obvious to

one having ordinary skill in the art at the time the invention was made to modify the apparatus of Schmidt to include a pump and reservoir, as per the teachings of Johansson, to handle special-duty boxes.

With respect to claim 12, Schmidt discloses a soft touch mechanism 28 insomuch as it allows a skilled artisan the ability to position cups 33 relative to a plate. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Schmidt to softly adjust vacuum cups depending on the angle of approach to an article.

Claims 5 & 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Ehmke and Johansson and further in view of Hoffman (US 4,460,208). Hoffman discloses two independent circuits (indicated generally as 13, 15) and reservoirs 21, 23 such that a "failure of a line or vacuum cup in either pair has no adverse effect on the vacuum in the other pair and the object is still firmly held." C2/L65. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus Schmidt to include two independent circuits, as per the teachings of Hoffman, for redundant vacuum connection to prevent dropping of an article.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Ehmke, Johansson and Hoffman and further in view of Tanaka (US 5,690,377). Tanaka discloses independent circuits including a manifold valve 37, 39 that separate a respective vacuum reservoir from a vacuum pump 40 to vacuum chuck articles of different sizes. C1. Therefore, it would have been obvious to one having

ordinary skill in the art at the time the invention was made to modify the apparatus of Ehmke to include manifold valves for each circuit, as per the teachings of Tanaka, to lift articles of different sizes.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Ehmke, Johansson, Hoffman and Tanaka and further in view of Bolotin et al. (US 6,467,824). Bolotin discloses a vacuum switch 145-148 that measures a vacuum level, an attachment further comprising a first signal coupled with a vacuum switch, a first signal indicating that sufficient vacuum has been achieved. Bolotin teaches a fail-safe pick and place unit and system in the event of a pick and place system failure. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Schmidt to include vacuum switches, as per the teachings of Bolotin et al., to send a signal at failure.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Ehmke, Johansson, Hoffman, Tanaka and Bolotin et al. and further in view of Movsesian (US 5,413,454) and Lang (US 5,142,803).

Movsesian discloses adding radio transmitters to an attachment for a telescopic material handler enabling support and manipulation of a load comprising an operator-controlled control system comprises a primary radio transmitter 152 and a secondary radio transmitter 12, and wherein control of a load is transferable between a primary and secondary radio transmitters which allows wheel-chair bound individuals to operate a material handler. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Schmidt to include

radio transmitters, as per the teachings of Movsesian, for operation by wheelchair bound individuals.

Lang discloses a primary radio transmitter 310 and a secondary radio transmitter 312 (or 222) which allows for added complexities of movement in the same controlled device such as in the movie industry where complex movements of a single animated character is required. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Schmidt to include primary and second radio transmitters, as per the teachings of Lang, for control by two transmitters of a single apparatus performing complex movements.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Ehmke and Johansson and further in view of Holter (US 6,082,080). Holter discloses a grip 170 and a clamp 100, 106 to grip articles and then subsequently place pallets prior to placement of articles by said clamp on said pallet. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Schmidt to include a grip and clamp on the same apparatus, as per the teachings of Holter, for placing pallets prior to stacking goods.

Claims 13 & 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Ehmke and further in view of Movsesian and Lang.

Movsesian discloses adding radio transmitters to an attachment for a telescopic material handler enabling support and manipulation of a load comprising an operator-controlled control system comprises a primary radio transmitter 152 and a secondary radio transmitter 12, and wherein control of a load is transferable between a primary

and secondary radio transmitters which allows wheel-chair bound individuals to operate a material handler. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Schmidt to include radio transmitters, as per the teachings of Movsesian, for operation by wheelchair bound individuals.

Lang discloses a primary radio transmitter 310 and a secondary radio transmitter 312 (or 222) which allows for added complexities of movement in the same controlled device such as in the movie industry where complex movements of a single animated character is required. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Schmidt to include primary and second radio transmitters, as per the teachings of Lang, for control by two transmitters of a single apparatus performing complex movements.

Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Ehmke and further in view of Bolotin et al. Bolotin discloses a vacuum switch 145-148 that measures a vacuum level, an attachment further comprising a first signal coupled with a vacuum switch, a first signal indicating that sufficient vacuum has been achieved. Bolotin teaches a fail-safe pick and place unit and system in the event of a pick and place system failure. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Schmidt to include vacuum switches, as per the teachings of Bolotin et al., to send a signal at failure.

Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Ehmke and further in view of Holter. Holter discloses a grip 170 and a clamp 100, 106 to grip articles and then subsequently place pallets prior to placement of articles by said clamp on said pallet. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Schmidt to include a grip and clamp on the same apparatus, as per the teachings of Holter, for placing pallets prior to stacking goods.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY W. ADAMS whose telephone number is (571)272-8101. The examiner can normally be reached on M-Th, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saul Rodriguez can be reached on (571) 272-7097. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3652

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gregory W Adams/
Primary Examiner, Art Unit 3652